

CLAIMS

The invention claimed is:

1. A bushing for moving a rotating scoring or slotting wheel in an axial
5 direction, comprising:

a housing configured for support by a yoke that moves axially to impart axial movement to the wheel while the wheel rotates;

a sacrificial end cap supported by the housing; and

the end cap configured for replacement without replacing the housing.

10 2. In or for a machine for scoring or slotting sheets of material using rotating wheels, wherein each wheels is configured for axial movement under force applied by an associated yoke, an improved set of bushings comprising:

a plurality of housings removably supported by each yoke;

15 each housing removably supporting a sacrificial end cap that is configured to contact its associated rotating wheel to impart said axial movement; and

each sacrificial end cap configured for replacement when worn without having to replace its associated housing.

20 3. The machine of claim 2, wherein each housing supports a second sacrificial end cap to permit bidirectional axial movement of its associated wheel.

4. The machine of claim 2, further comprising a plurality of shims
25 configured for placement between an end cap and its associated housing to offset wear of the end cap.

5. A bushing for axially positioning a rotating wheel, comprising:

30 a housing configured for engagement with a yoke that is used to axially position a rotating wheel that is used for scoring or slotting sheets of material as the sheets are conveyed past the rotating wheel;

a sacrificial end cap configured for receipt by the housing and, when supported by the housing, configured to contact the rotating wheel under force exerted by the yoke to axially position the rotating wheel; and

a retainer configured to removably hold the end cap to the housing.

6. The bushing of claim 5, further comprising one or more shims configured for location between the end cap and the housing to offset wear of the end cap.

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7. The bushing of claim 5, wherein the housing is configured to receive a second end cap to permit bidirectional positioning of the wheel.

8. The bushing of claim 5, wherein the end cap comprises a nut configured to threadably engage a socket through the yoke.

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9. A bushing for axially positioning a rotating wheel, comprising:

a housing nut configured to threadably engage a yoke that is used to axially position a rotating wheel that is used for scoring or slotting sheets of material as the sheets are conveyed past the rotating wheel;

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a first sacrificial end cap configured for receipt by the housing nut and, when supported by the housing nut, configured to contact the rotating wheel under force exerted by the yoke to position the rotating wheel in a first axial direction;

a second sacrificial end cap configured for receipt by the housing nut and, when supported by the housing nut, configured to contact the rotating wheel under force exerted by the yoke to position the rotating wheel in a second axial direction;

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one or more retainers configured to removably hold the first and second end caps to the housing.

10. The bushing of claim 9, further comprising one or more shims configured for location between the end caps and the housing to offset wear of the end caps.

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11. A machine for scoring or slotting sheets of material as the sheets are conveyed through the machine, comprising:

a die for scoring or slotting the sheets rotating about an axis;

a yoke for axially positioning the die;

5 a drive for changing the axial position of the yoke and thereby changing the axial position of the die; and

a bushing for translating axial movement of the yoke to axial movement of the rotating wheel, comprising a housing engaged with the yoke, a sacrificial end cap supported by the housing, and a retainer removably holding the end cap to the
10 housing.

12. The machine of claim 11, wherein the housing supports a second sacrificial end cap to permit bidirectional axial movement of the die.

15 13. The machine of claim 12, wherein the yoke supports a plurality of similar bushings, each comprising a housing supporting a pair of sacrificial end caps.

14. The machine of claim 13, further comprising a plurality of similar dies, each die having an associated yoke, each yoke supporting a plurality of bushings, and
20 each bushing comprising a housing supporting a pair of sacrificial end caps to permit bidirectional axial movement of the associated die.

15. The machine of claim 14, further comprising a plurality of similar anvils, each anvil opposing a corresponding die, each anvil having an associated yoke, each
25 yoke supporting a plurality of bushings, and each bushing comprising a housing supporting a pair of sacrificial end caps to permit bidirectional axial movement of the associated anvil.

16. The machine of claim 15, further comprising a shim located between
30 one of the end caps its associated housing to offset wear of the end cap.

17. A method for axially positioning a rotating wheel in a machine for slotting or scoring sheets of material, comprising the steps of:

installing a bushing into a yoke that is configured to axially position the rotating wheel, the bushing comprising a housing and a sacrificial end cap configured for receipt by the housing;

positioning the yoke such that the end cap is in adjacent to the rotating wheel;

changing the axial position of the yoke and thereby changing the axial position of the rotating wheel.

18. The method of claim 17, further comprising the step of removing a worn end cap from the housing and installing a replacement end cap in the housing.

19. The method of claim 18, further comprising the step of providing a set of shims for location between the housing and the end cap to offset wear of the end cap.

20. The method of claim 19, further comprising the step of inserting a shim between the housing and the end cap to offset wear of the end cap.